

SEQUENCE LISTING

<110> Wyeth Holdings Corporation

<120> RECOMBINANT EXPRESSION OF STREPTOCOCCUS PYOGENES CYSTEINE
PROTEASE AND IMMUNOGENIC COMPOSITIONS THEREOF

<130> AM100904

<160> 15

<170> PatentIn version 3.2

<210> 1

<211> 1197

<212> DNA

<213> Streptococcus pyogenes

```

<400> 1
atgaataaaa agaaattagg tgtcagatta ttaagtcttt tagcattagg tggatttggt      60
cttgctaacc cagtatttgc cgatcaaaac tttgctcgta acgaaaaaga agcaaaagat      120
agcgctatca catttatcca aaaatcagca gctatcaaag caggtgcacg aagcgcagaa      180
gatattaagc ttgacaaagt taacttaggt ggagaacttt ctggctctaa tatgtatggt      240
tacaatattt ctactggagg atttgttatc gtttcaggag ataaacgttc tccagaaatt      300
ctaggatact ctaccagcgg atcatttgac gctaacggta aagaaaacat tgcttccttc      360
atggaaagtt atgtcgaaca aatcaaagaa aacaaaaaat tagacactac ttatgctggt      420
accgctgaga ttaaacaacc agttgttaaa tctctccttg attcaaaagg cattcattac      480
aatcaaggta acccttacia cctattgaca cctgttattg aaaaagtaaa accaggtgaa      540
caatcttttg taggtcaaca tgcagctaca ggatgtggtg ctactgcaac tgctcaaatt      600
atgaaatata ataattaccc taacaaaggg ttgaaagact acacttacac actaagctca      660
aataacccat atttcaacca tcctaagaac ttgtttgcag ctatctctac tagacaatac      720
aactggaaca acatcttacc tacttatagc ggaagagaat ctaacgttca aaaaatggcg      780
atctcagaat tgatggctga tggttggtatt tcagtagaca tggattatgg tccatctagt      840
ggttctgcag gtagctctcg tggtcaaaga gccttgaaag aaaacttttg ctacaaccaa      900
tctgttcacc aaatcaaccg tggcgacttt agcaaacaag attgggaagc acaaattgac      960
aaagaattat ctcaaaacca accagtatac taccaagggtg tcggtaaagt aggcggacat     1020
gcctttgtta tcgatgggtg tgacggacgt aacttctacc atgttaactg ggggtggggg     1080
ggagtctctg acggcttctt ccgtcttgac gactaaacc cttcagctct tgggtactggg     1140
ggcggcgcag gcggcttcaa cggttaccaa agtgctggtg taggcatcaa accttag         1197

```

<210> 2
 <211> 398
 <212> PRT
 <213> Streptococcus pyogenes

<400> 2

Met Asn Lys Lys Lys Leu Gly Val Arg Leu Leu Ser Leu Leu Ala Leu
 1 5 10 15

Gly Gly Phe Val Leu Ala Asn Pro Val Phe Ala Asp Gln Asn Phe Ala
 20 25 30

Arg Asn Glu Lys Glu Ala Lys Asp Ser Ala Ile Thr Phe Ile Gln Lys
 35 40 45

Ser Ala Ala Ile Lys Ala Gly Ala Arg Ser Ala Glu Asp Ile Lys Leu
 50 55 60

Asp Lys Val Asn Leu Gly Gly Glu Leu Ser Gly Ser Asn Met Tyr Val
 65 70 75 80

Tyr Asn Ile Ser Thr Gly Gly Phe Val Ile Val Ser Gly Asp Lys Arg
 85 90 95

Ser Pro Glu Ile Leu Gly Tyr Ser Thr Ser Gly Ser Phe Asp Ala Asn
 100 105 110

Gly Lys Glu Asn Ile Ala Ser Phe Met Glu Ser Tyr Val Glu Gln Ile
 115 120 125

Lys Glu Asn Lys Lys Leu Asp Thr Thr Tyr Ala Gly Thr Ala Glu Ile
 130 135 140

Lys Gln Pro Val Val Lys Ser Leu Leu Asp Ser Lys Gly Ile His Tyr
 145 150 155 160

Asn Gln Gly Asn Pro Tyr Asn Leu Leu Thr Pro Val Ile Glu Lys Val
 165 170 175

Lys Pro Gly Glu Gln Ser Phe Val Gly Gln His Ala Ala Thr Gly Cys
 180 185 190

Val Ala Thr Ala Thr Ala Gln Ile Met Lys Tyr His Asn Tyr Pro Asn

195					200					205					
Lys	Gly	Leu	Lys	Asp	Tyr	Thr	Tyr	Thr	Leu	Ser	Ser	Asn	Asn	Pro	Tyr
210						215					220				
Phe	Asn	His	Pro	Lys	Asn	Leu	Phe	Ala	Ala	Ile	Ser	Thr	Arg	Gln	Tyr
225					230					235					240
Asn	Trp	Asn	Asn	Ile	Leu	Pro	Thr	Tyr	Ser	Gly	Arg	Glu	Ser	Asn	Val
				245					250					255	
Gln	Lys	Met	Ala	Ile	Ser	Glu	Leu	Met	Ala	Asp	Val	Gly	Ile	Ser	Val
			260					265					270		
Asp	Met	Asp	Tyr	Gly	Pro	Ser	Ser	Gly	Ser	Ala	Gly	Ser	Ser	Arg	Val
		275					280					285			
Gln	Arg	Ala	Leu	Lys	Glu	Asn	Phe	Gly	Tyr	Asn	Gln	Ser	Val	His	Gln
	290					295					300				
Ile	Asn	Arg	Gly	Asp	Phe	Ser	Lys	Gln	Asp	Trp	Glu	Ala	Gln	Ile	Asp
305					310					315					320
Lys	Glu	Leu	Ser	Gln	Asn	Gln	Pro	Val	Tyr	Tyr	Gln	Gly	Val	Gly	Lys
				325					330					335	
Val	Gly	Gly	His	Ala	Phe	Val	Ile	Asp	Gly	Ala	Asp	Gly	Arg	Asn	Phe
			340					345					350		
Tyr	His	Val	Asn	Trp	Gly	Trp	Gly	Gly	Val	Ser	Asp	Gly	Phe	Phe	Arg
		355					360					365			
Leu	Asp	Ala	Leu	Asn	Pro	Ser	Ala	Leu	Gly	Thr	Gly	Gly	Gly	Ala	Gly
	370					375					380				
Gly	Phe	Asn	Gly	Tyr	Gln	Ser	Ala	Val	Val	Gly	Ile	Lys	Pro		
385					390					395					

<210> 3
 <211> 27
 <212> DNA
 <213> Artificial

<220>
 <223> synthetic oligonucleotide

<400> 3
 ccatggaacc agttgttaaa tctctcc 27

<210> 4
 <211> 29
 <212> DNA
 <213> Artificial

<220>
 <223> synthetic oligonucleotide

<400> 4
 ggatcctaag gtttgatgcc tacaacagc 29

<210> 5
 <211> 27
 <212> DNA
 <213> Artificial

<220>
 <223> synthetic oligonucleotide

<400> 5
 ccatggatca aaactttgct cgtaacg 27

<210> 6
 <211> 30
 <212> DNA
 <213> Artificial

<220>
 <223> synthetic oligonucleotide

<400> 6
 ggatccttat ttaatctcag cggtaccagc 30

<210> 7
 <211> 23
 <212> DNA
 <213> Artificial

<220>
 <223> synthetic oligonucleotide

<400> 7
 gctacaggat gtgttgctac tgc 23

<210> 8
 <211> 23
 <212> DNA
 <213> Artificial

<220>
 <223> synthetic oligonucleotide

 <400> 8
 gcagtagcaa cacatcctgt agc 23

<210> 9
 <211> 30
 <212> DNA
 <213> Artificial

<220>
 <223> synthetic oligonucleotide

 <400> 9
 agatctaagg agatatacat atggacccag 30

<210> 10
 <211> 33
 <212> DNA
 <213> Artificial

<220>
 <223> synthetic oligonucleotide

 <400> 10
 agatctttaa gaaggagata tacatatgga acc 33

<210> 11
 <211> 39
 <212> DNA
 <213> Artificial

<220>
 <223> synthetic oligonucleotide

 <400> 11
 agatctgcac ataactttaa gaaggagata tacatatgg 39

<210> 12
 <211> 59
 <212> DNA
 <213> Artificial

<220>
 <223> synthetic oligonucleotide

 <400> 12
 agatctaact tgactaaatt cgaacagcac ataactttaa gaaggagata tacatatgg 59

<210> 13
 <211> 30
 <212> DNA

<213> Artificial

<220>

<223> synthetic oligonucleotide

<400> 13

ctcgagctaa ggtttgatgc ctacaacagc

30

<210> 14

<211> 27

<212> DNA

<213> Artificial

<220>

<223> synthetic oligonucleotide

<400> 14

ccatggatca aaactttgct cgtaacg

27

<210> 15

<211> 30

<212> DNA

<213> Artificial

<220>

<223> synthetic oligonucleotide

<400> 15

ctcgagctaa ggtttgatgc ctacaacagc

30